

Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 0658 Spring Creek

Submitted by

Pickett Ray & Silver Inc.

to

Missouri Department of Natural Resources  
Water Protection Program

Date received: October 31, 2007



Missouri  
Department of  
Natural Resources  
Field Data Sheets for Recreational Use Stream Surveys  
Data Sheet A – Water Body Identification

**I. Water Body Information** (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): <u>Spring Creek</u>	
Missouri Water Body Identification (WBID) Number: <u>658</u>	
8-digit HUC: <u>10280202</u>	County: <u>Sullivan</u>
Upstream Legal Description (from Table H): <u>Hwy 129</u>	
Downstream Legal Description (from Table H): <u>26,64N, 18W</u>	
Number of sites evaluated: <u>3</u>	
List all sites numbers, listed consequently upstream to downstream: <u>658-1; 658-2; 658-3</u>	

**Site Locations Map(s):** Attach a map of the entire segment with assessment sites clearly labeled.  
Mark any other items that may be of interest.

**II. Facility Information** (list all permitted discharges to the water body segment)

Facility Name(s) and Permit Number(s): <u>PSF, Green Hills Finishing - MO 0118486</u>
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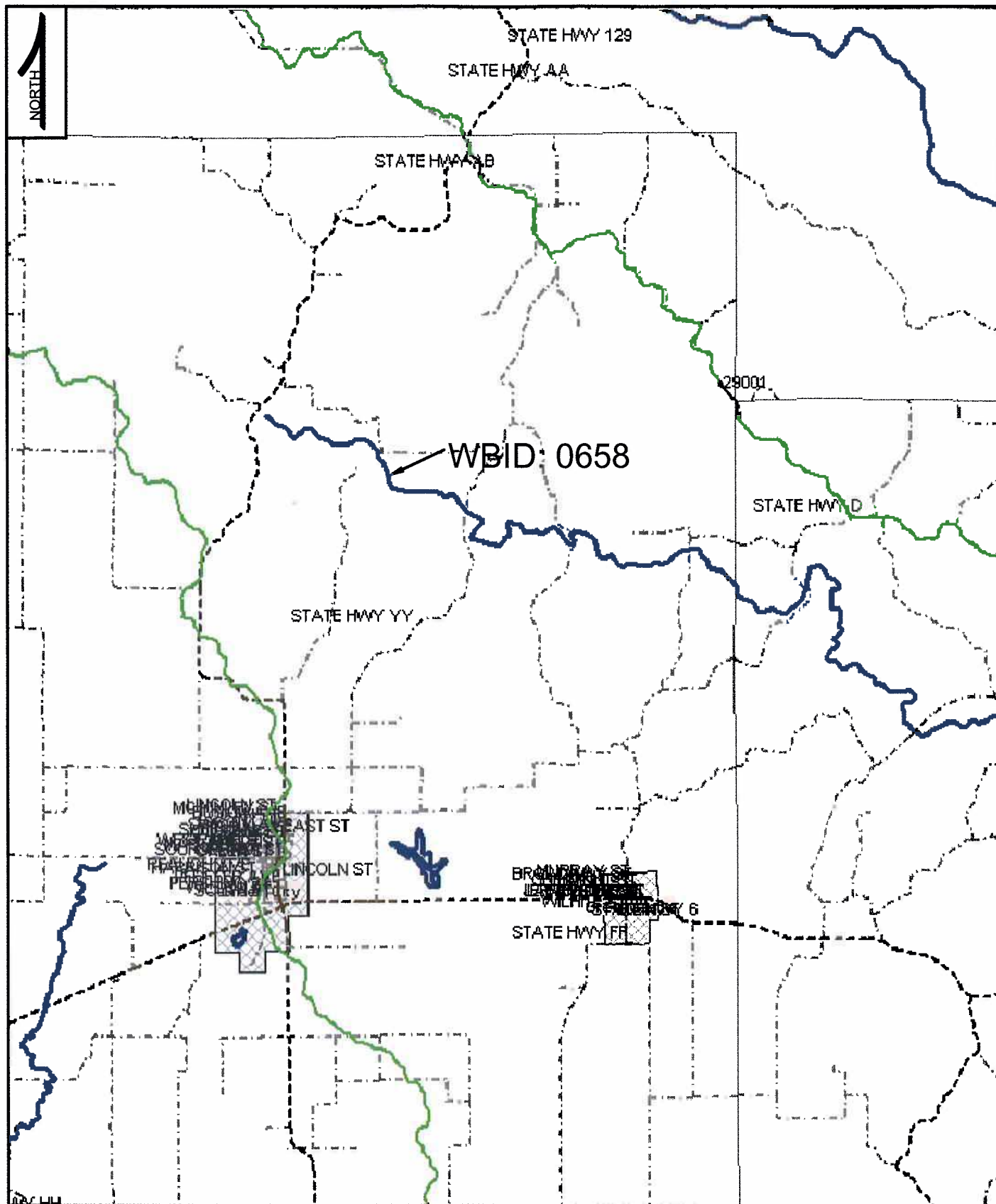
**III. UAA Surveyor** (please print legibly)

Name of Surveyor <u>Math Cosley</u>	Telephone Number: <u>636 397 1211</u>
Organization/Employer: <u>PRS</u>	

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Signed:  Date: 9/10/07

\\3serverprps\Projects\07031\dwg\07031\_MODN\_01E\0658 Spring Creek.dwg, 10/26/2007 2:17:39 PM, 1:2000, MATT COSBY



## PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources

Address: Phone: (636)397-1211  
333 Mid Rivers Mall Drive Fax: (636)397-1104  
St. Peters, Missouri 63376 Website: www.prs3.com

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WBID #: 0658  
Name: Spring Creek  
County: Sullivan  
GIS Location Map

SHEET 1 OF 1

PRS Job Number: 07031.MODN.01E  
Drawn By: BLS Date: 10-11-07  
Checked By: JCV Date: 10-11-07





# PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources

Address: Phone: (636)397-1211  
333 Mid Rivers Mall Drive Fax: (636)397-1104  
St. Peters, Missouri 63376 Website: www.prs3.com

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WBID #: 0658  
Name: Spring Creek  
County: Sullivan  
USGS Location Map

SHEET 1 OF 2

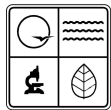


**GRAPHIC SCALE**  
1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E  
Drawn By: BLS Date: 09-25-07  
Checked By: JCY Date: 09-25-07



PRS Job Number: 07031.MODN.01E  
 Drawn By: BLS Date: 09-25-07  
 Checked By: JCV Date: 09-25-07

WBID # 658Site # 1

# Field Data Sheets for Recreational Use Stream Surveys

## Department of

## Natural Resources

### Data Sheet B – Site Characterization

(must be completed for each site)

Date & Time: <u>9/10/07 3:30 pm</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>LS+MC</u>	<u>Downstream of Road Crossing</u>
Current Weather Conditions: <u>Cool, light rain</u>	Facility Name: <u>PSF, Green Hills Finishing</u>
Weather Conditions for Past 10 days: <u>98% rain</u>	Permit Number: <u>MO 0118486</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location: See attached map

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>5038166</u>	Northing (UTM Y): <u>4465462</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>3.7</u> Meters
Site 11	Easting (UTM X): <u>503985</u>	Northing (UTM Y): <u>4465368</u>	Horizontal Accuracy: (EPE / FOM / PDOP) <u>5.4</u> Meters

Photos: See attached photos + descriptions

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

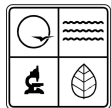
Uses Observed\*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

Clothing found at pool below bridge



WBID # 658Site # 1

**Missouri Field Data Sheets for Recreational Use Stream Surveys**  
**Department of**  
**Natural Resources**  
**Data Sheet B – Site Characterization (continued)**

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other:				

**Substrate\*:** (These values should add up to 100%.)

% Cobble	<u>20</u>	% Gravel	<u>20</u>	% Sand	<u>40</u>	% Silt	<u>20</u>	% Mud/Clay	% Bedrock
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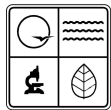
**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 658Site # 1

**Missouri Field Data Sheets for Recreational Use Stream Surveys**  
**Department of**  
**Natural Resources**

**Data Sheet B – Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

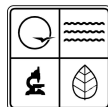
Surveyor's Signature: MC Date of Survey: 9/10/07

Organization: PPS Position: FTL



# Field Data Sheets for Recreational Use Stream Surveys

## Data Sheet C - Field Survey Results



Waterbody ID: 658

Site #: X1

Missouri  
Department of  
Natural Resources

Channel Elevation: 0.2 (m) (height between low bank width and water)

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 503866 UTM Y: 4465462 +/- (meters) 3.7 PDOP: 3.7

11 UTM X: 503985 UTM Y: 4465368 +/- (meters) 5.4

Average Stream Width: 3.3 (meters) Length of Survey Segment: 150 (meters)  
(To determine Length of Reach) (20x average stream width)

Field Staff: LS + MC

### Dissolved Oxygen

Date: 9/10/07 Time: 3:30

Dissolved Oxygen: 7.6 (mg/L)

Dissolved Oxygen: \_\_\_\_\_ (% sat)

Specific Cond: \_\_\_\_\_ (µS/cm)

Water Temperature: 19.2 (°C)

### Transect Cross-Section

Station		Transverse Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1		.33	.05	.20	.04	.61	.14	.56	.2	.54	.21	.52	.25	.49	.50	.56	.30	.14	.68	.55	.05	.64	.10
2		.66	.03	.40	.05	1.2	.19	1.1	.23	1.1	.25	1.0	.43	1.0	.60	1.1	.45	.28	.10	1.1	.08	1.3	.18
3		1.0	.04	.60	.04	1.8	.24	1.7	.11	1.6	.28	1.5	.11	1.5	.55	1.6	.35	.42	.10	1.7	.10	2.0	.2
4		1.3	.05	.80	.05	2.4	.20	2.2	.13	2.2	.26	2.0	.10	2.0	.50	2.2	.34	.56	.10	2.2	.10	2.6	.2
5		1.7	.05	1.0	.05	3.0	.20	2.8	.20	2.7	.20	2.5	.05	2.5	.32	2.7	.30	.70	.10	2.8	.10	3.2	.25
6		2.0	.11	1.2	.06	3.6	.13	3.4	.15	3.2	.20	3.0	.10	3.0	.21	3.3	.30	.84	.10	3.3	.13	3.8	.18
7		2.3	.10	1.4	.06	4.2	.15	4.0	.03	3.8	.13	3.5	.11	3.5	.20	4.0	.22	1.0	.10	4.0	.15	4.5	.15
8		2.6	.05	1.6	.06	4.8	.09	4.5	.05	4.3	.11	4.0	.10	4.0	.10	4.4	.10	1.1	.05	4.4	.10	5.1	.13
9		3.0	.05	1.8	.05	5.4	.15	5.0	.01	5.0	.10	4.5	.05	4.5	.05	5.0	.10	1.3	.01	5.0	.10	5.8	.11
Right Bank		3.3	0	2.0	0	6.1	0	5.6	0	5.4	0	5.2	0	4.9	0	5.6	0	1.4	0	5.5	0	6.4	0
Feature Type (riffle, run, or pool)		Riffle		Riffle		Run		Run		Run		Run		Run		Pool		Riffle		Riffle		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width.

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

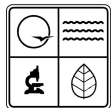
Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: ME

Date: 9/10/07

WBID # 658Site # 2

## Missouri Field Data Sheets for Recreational Use Stream Surveys

Department of

Natural Resources

## Data Sheet B – Site Characterization

(must be completed for each site)

Date & Time: <u>09/10/07 2:30p</u>	Site Location Description (e.g., road crossing): <u>Road Crossing</u>
Personnel (Data Collectors): <u>LS + MC</u>	<u>Upstream of the</u>
Current Weather Conditions: <u>cloudy, windy, 68°F</u>	Facility Name: <u>PSF Green Hills Finishing</u>
Weather Conditions for Past 10 days: <u>98 in rain</u>	Permit Number: <u>MO 0118486</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

## Site Location:

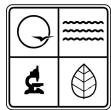
LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>507278</u>	Northing (UTM Y): <u>4463930</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>4.3</u>	<del>Meters</del>
Site 11	Easting (UTM X): <u>507392</u>	Northing (UTM Y): <u>4463826</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>3.3</u>	<del>Meters</del>

Photos: See attached photos and descriptions

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

## Uses Observed\*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				

WBID # 658Site # 2

# Missouri Field Data Sheets for Recreational Use Stream Surveys Department of Natural Resources

## Data Sheet B – Site Characterization (continued)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input checked="" type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other:				

**Substrate\*:** (These values should add up to 100%.)

% Cobble	<u>10</u> % Gravel	<u>40</u> % Sand	% Silt	<u>50</u> % Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

<u>Aquatic arrowweed, barnyard grass</u>
--

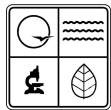
**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other: <u>Sandy</u>
Surface Deposit:	<input checked="" type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.



WBID # 652  
Site # 8 <sup>1</sup>



**Missouri Field Data Sheets for Recreational Use Stream Surveys**  
**Department of Natural Resources**  
**Data Sheet B – Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

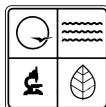
**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Surveyor's Signature: MC Date of Survey: 9/10/07

Organization: PRG Position: FTL

# Field Data Sheets for Recreational Use Stream Surveys

## Data Sheet C - Field Survey Results



Waterbody ID: 658

Site #: 2

Missouri

Department of Natural Resources  
Elevation: 0.4 (m) (height between low bank width and water)

Natural Resources

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE/ PDOP/ FOM)

01 UTM X: 507278 UTM Y: 4463930 +/- (meters) 4.3 PDOP: 4.3

11 UTM X: 507392 UTM Y: 4463826 +/- (meters) 3.3

Average Stream Width: 5.1 (meters)

Length of Survey Segment: 150 (meters)

(To determine Length of Reach)

(20x average stream width)

Field Staff: LS & MC

### Dissolved Oxygen

Date: 9/10/07 Time: 230

Dissolved Oxygen: 9.35 (mg/L)

Dissolved Oxygen: \_\_\_\_\_ (% sat)

Specific Cond: \_\_\_\_\_ (µS/ cm)

Water Temperature: 21.2 (°C)

### Transect Cross-Section

Station		Transsect Cross-Section																					
		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1		.22	.02	.47	.01	.31	.01	.83	.10	.72	.11	.53	.25	.47	.09	.32	.15	.58	.19	.57	.25	.51	.05
2		.40	.03	1.0	.02	.60	.02	1.7	0	1.4	.11	1.1	.30	1.0	.19	.60	.19	1.2	.26	1.1	.30	1.0	.10
3		.60	.02	1.4	.05	.90	.01	2.5	.05	2.2	.13	1.6	.31	1.4	.24	.90	.31	1.8	.32	1.7	.30	1.5	.15
4		.80	.03	2.0	.05	1.2	0	3.3	.05	3.0	.15	2.1	.26	2.0	.25	1.2	.44	2.3	.30	2.3	.34	2.0	.17
5		1.0	.06	2.4	0	1.5	0	4.2	0	3.6	.15	2.7	.23	2.4	.26	1.5	.46	3.0	.31	3.0	.38	2.5	.18
6		1.2	.12	2.8	0	1.8	.02	5.0	0	4.4	.10	3.2	.15	2.8	.30	1.8	.34	3.5	.44	3.4	.42	3.0	.23
7		1.4	.13	3.3	.01	2.1	.02	5.8	0	5.1	.02	3.7	.03	3.3	.28	2.1	.3	4.0	.4	4.0	.35	3.5	.24
8		1.6	.10	3.8	.02	2.4	.04	6.6	0	6.0	.13	4.2	0	3.8	.14	2.4	.22	4.6	.35	4.6	.23	4.0	.25
9		1.8	.02	4.2	.03	2.7	.05	7.5	.09	6.6	.10	4.8	.05	4.2	.09	2.7	.10	5.2	.28	5.1	.15	4.5	.14
Right Bank		2.2	0	4.7	0	3.1	0	8.3	0	7.2	0	5.3	0	4.7	0	3.2	0	5.8	0	5.7	0	5.1	0
Feature Type		Riffle		Riffle		Riffle		Riffle		Pool		Run		Run		Run		Pool		Pool		Pool	
(riffle, run, or pool)																							

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

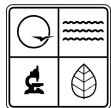
Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed:

Date:

WBID # 658Site # 3nd

## Missouri Field Data Sheets for Recreational Use Stream Surveys

Department of

Natural Resources

## Data Sheet B – Site Characterization

(must be completed for each site)

Date & Time: <u>9/10/07 1:29 pm</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>LS + MC</u>	<u>Upstream of road crossing</u>
Current Weather Conditions: <u>cloudy, windy, 70°F</u>	Facility Name: <u>PSF Green Hills Finishing</u>
Weather Conditions for Past 10 days: <u>.98 in. rain</u>	Permit Number: <u>MO 0118486</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

## Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): <u>509159</u>	Northing (UTM Y): <u>4463358</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>4.7</u>	<u>Meters</u>
Site 11	Easting (UTM X): <u>509239</u>	Northing (UTM Y): <u>4463232</u>	Horizontal Accuracy: (EPE / FOM / PDOP)	<u>.21</u>	<u>Meters</u>

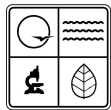
Photos: see attached photos and descriptions

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

## Uses Observed\*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				



WBID # 658Site # 3

**Missouri Field Data Sheets for Recreational Use Stream Surveys**  
**Department of Natural Resources**  
**Data Sheet B – Site Characterization (continued)**

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input checked="" type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other:				

**Substrate\*:** (These values should add up to 100%.)

% Cobble	% Gravel	<u>90</u> % Sand	% Silt	<u>10</u> % Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site)

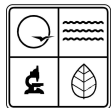
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input checked="" type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other: <u>Clay</u>
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

WBID # 658  
Site # 3



**Missouri Field Data Sheets for Recreational Use Stream Surveys**  
**Department of Natural Resources**  
**Data Sheet B – Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

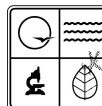
**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Surveyor's Signature: MC Date of Survey: 9/12/07

Organization: PRS Position: FTL

# Field Data Sheets for Recreational Use Stream Surveys

## Data Sheet C - Field Survey Results



Waterbody ID: 658

Site #: 30

Missouri

Department of

Natural Resources

GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)

01 UTM X: 509159

UTM Y: 4463358

+/- (meters) 4.7

11 UTM X: 509239

UTM Y: 4463232

+/- (meters) 0.21

Average Stream Width: 3.7 (meters)

Length of Survey Segment: 150 (meters)

(To determine Length of Reach)

(20x average stream width)

Field Staff: LS & MC

### Dissolved Oxygen

Date: 9/10/07

Time: 1:20

Dissolved Oxygen: 7.34 (mg/L)

Dissolved Oxygen: \_\_\_\_\_ (% sat)

Specific Cond: \_\_\_\_\_ (µS/cm)

Water Temperature: 20.8 (°C)

### Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	.20	.03	.46	.05	.27	.06	.30	.01	.48	.06	.27	.02	.88	.11	.79	.24	.48	.4	.73	.62	.37	.1
2	.40	.05	.92	.13	.54	.07	.60	.03	1.0	.05	.54	.01	1.8	.0	1.6	.4	1.0	.36	1.5	.05	.74	.12
3	.60	.05	1.4	.11	.81	.03	.90	.03	1.4	.05	.81	.01	2.6	.29	2.4	.35	1.4	.3	2.2	.04	1.1	.18
4	.80	.1	1.8	.1	1.1	.06	1.2	.04	2.0	0	1.1	.62	3.5	0	3.2	.34	2.0	.24	3.0	.05	1.5	.15
5	1.0	.1	2.3	.06	1.4	.05	1.5	.05	2.4	0	1.4	.03	4.4	.14	4.0	.33	2.4	.15	3.7	.05	2.0	.15
6	1.2	.1	2.8	.05	1.6	.02	1.8	.04	3.0	0	1.6	.05	5.3	.3	4.8	.36	2.8	.14	4.4	.05	2.2	.23
7	1.4	.13	3.2	.04	2.0	.05	2.1	.05	3.4	.1	2.0	.1	6.2	.19	5.6	.24	3.3	.1	5.1	0	2.6	.2
8	1.6	.13	3.7	.01	2.2	.03	2.4	.05	3.8	.05	2.2	.05	7.0	.24	6.4	.29	3.8	.1	5.8	0	3.0	.1
9	1.8	.08	4.1	.02	2.4	.01	2.7	.05	4.3	.01	2.4	.04	8.0	.1	7.2	.1	4.2	.05	6.6	.2	3.3	.08
Right Bank	2.0	0	4.6	0	2.7	0	3.0	0	4.8	0	2.7	0	8.8	0	7.9	0	4.8	0	7.3	0	3.7	0
Feature Type	Run		Run		Run		Run		Run		Run		Pool		Run		Run		Riffle		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: MC

Date: 9/10/07



**WBID# 0658**



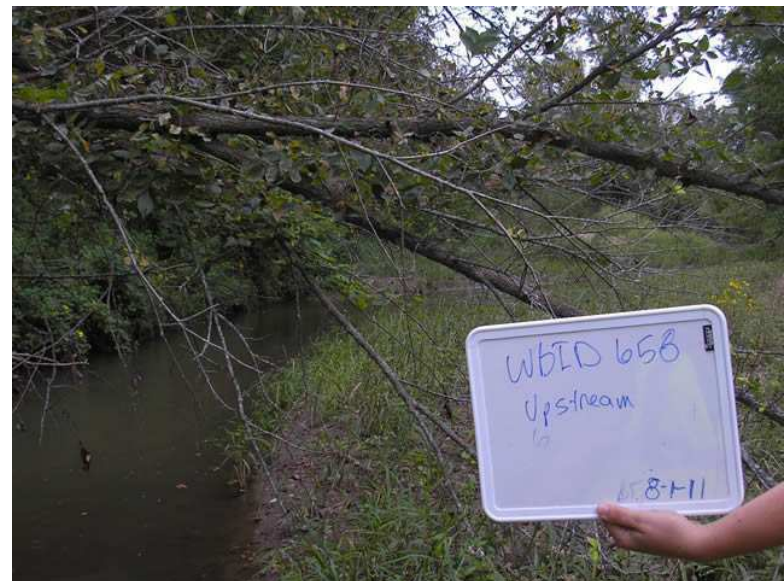
**Site# 1 Photo ID# Downstream T-1**



**Site# 1 Photo ID# Upstream T-1**



**Site# 1 Photo ID# Downstream T-11**



**Site# 1 Photo ID# Upstream T-11**



**WBID# 0658**



**Site# 2 Photo ID# Downstream T-1**



**Site# 2 Photo ID# Upstream T-1**



**Site# 2 Photo ID# Downstream T-11**



**Site# 2 Photo ID# Upstream T-11**



**WBID# 0658**



**Site# 2 Photo ID# Use**



**Site# 3 Photo ID# Upstream T-1**



**Site# 3 Photo ID# Downstream T-1**



**Site# 3 Photo ID# Upstream T-11**

**WBID# 0658**



**Site# 3 Photo ID# Downstream T-11**



**Site# 3 Photo ID# Use**